



- Please keep your microphone muted
- **Questions during the session?** Please use the chat box. We will address the questions in the second part of the webinar
- Note that this webinar will be recorded and made available on our IHE-Europe [YouTube channel](#)
- Slides will be sent to you by email early next week

IHE[®]

EUROPE



WEBINARS



The IHE Methodology

...and how we're leveraging it on the UNICOM project.

Derek Ritz, IHE member in UNICOM project

10 November 2023


IHE-Europe Monthly Webinar

- Quick introduction
- What is **IHE's role** in the digital health **SDO community**?
- What is the **IHE Methodology** (and why it is helpful)?
- How are we trying to make **UNICOM** more boring?
- Q&A



Compulsory apologies...

LinkedIn



Derek Ritz 1st

Principal Consultant, ecGroup Inc.
Toronto, Canada Area | Information Technology and Services

Current ecGroup Inc., The University of Edinburgh, ISO TC215

Previous Université de Sherbrooke, Canada Health Infoway Standards Collaborative, MARC HI

Education The University of Edinburgh


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500+ connections

<https://ca.linkedin.com/in/derekritz>

Contact Info

Background

 **Summary**

Trusted advisor to global public and private sector clients regarding m/eHealth architecture, strategy, implementation and adoption.

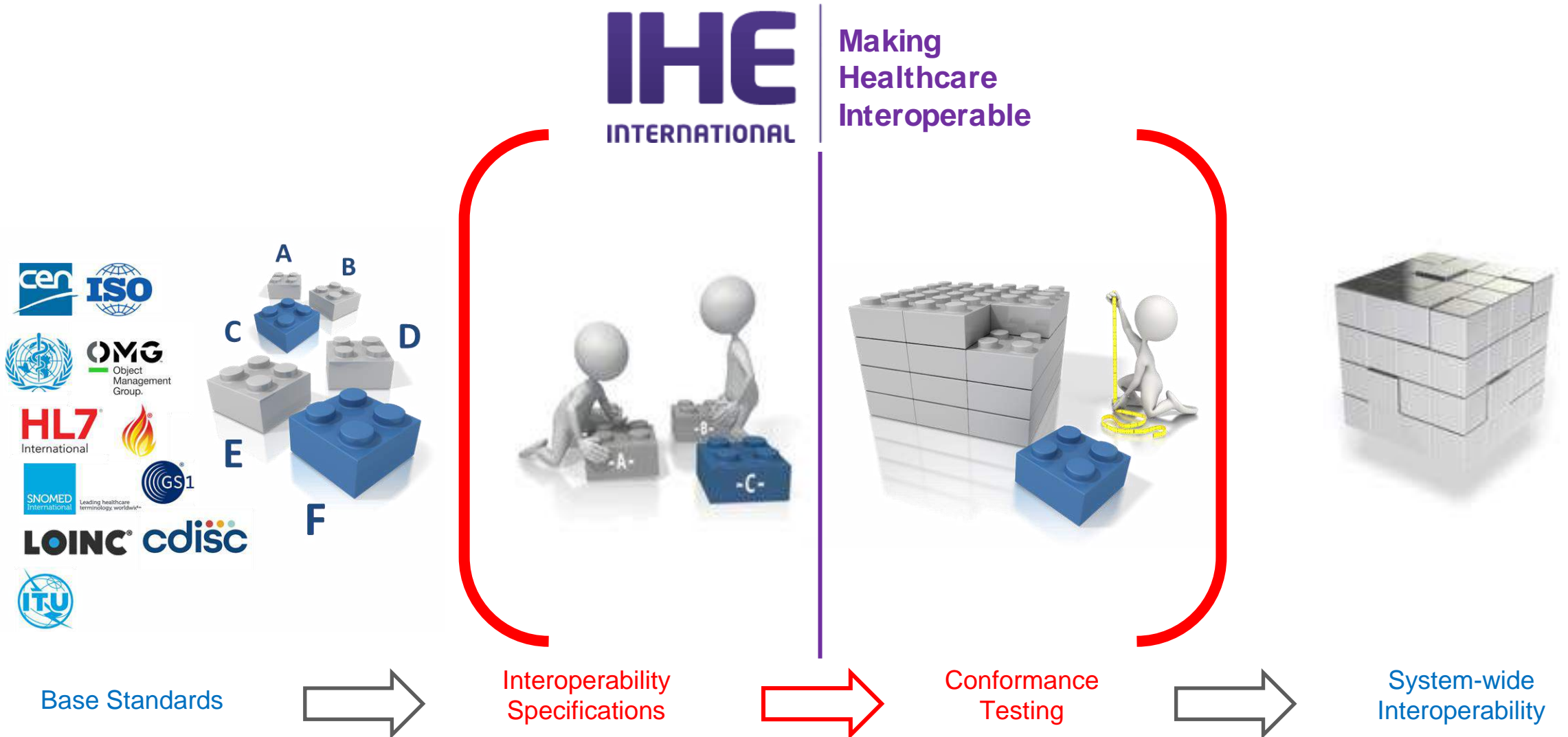
Specialties: eHealth technology & strategy, health enterprise architecture, big data analytics, health informatics standards, lean healthcare, patient safety & quality of care, EHR implementation, security, privacy, supply chain management (SCM), BPR, IT systems analysis, SOA



What role does IHE play in the digital health SDO ecosystem?



What role does IHE play in the digital health SDO ecosystem?



How does IHE play this role?

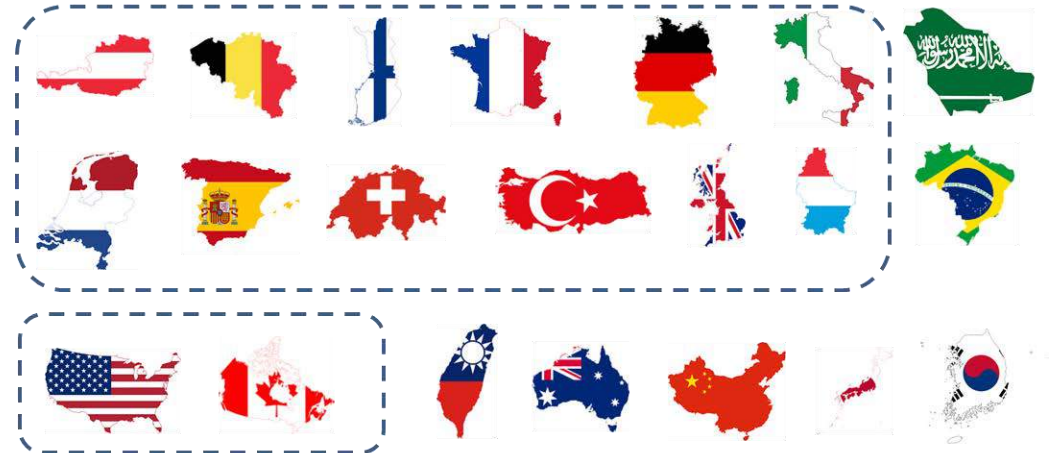


Making
Healthcare
Interoperable

Domain Committees

Radiology
IT Infrastructure
Pharmacy
Quality, Research & Public Health
Cardiology
Devices
Eye Care
Dental
Pathology and Laboratory Medicine
Radiation Oncology
Patient Care Coordination
Dental

Deployment Committees



Nationalize artefacts.
Conformance-test.
Exert governance.



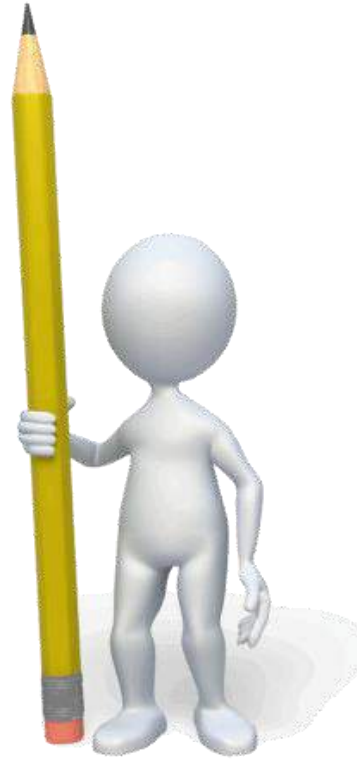
crushingly

Create engineering artefacts.

boring

What is the **value proposition** behind all this boredom?

Scale is the
innovation.



Maybe we at IHE should change our **marketing** “tag line”...

IHE
INTERNATIONAL

Taking all the *fun* out
of digital health for
over 20 years.



How does the **IHE Methodology** accomplish this?

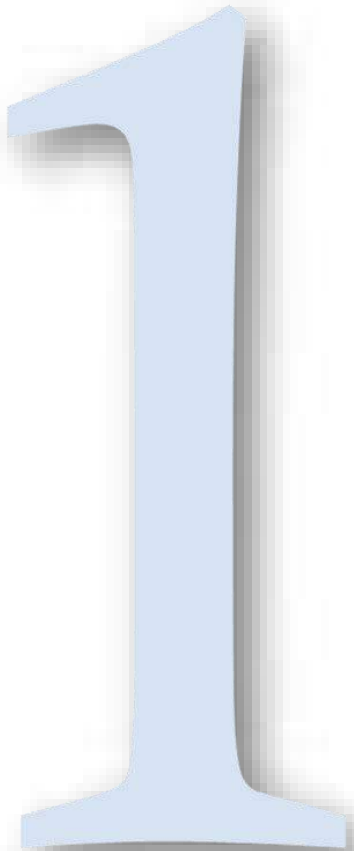


There are **three** key pillars to the Methodology.



- 1 **IHE Profiles** (implementable actor-transaction specifications)
- 2 **IHE reference models** (technical frameworks defined in Gazelle)
- 3 **IHE conformance assessment** (testing events)

IHE Profiles follow a prescriptive **format** and **governance** process.



Volume 1:

Volume 2:

Volume 3:

Volume 4:

In Volume 1, **business requirements** are **clearly** and **simply** described.

1



Volume 1:



Volume 2:

Volume 3:

Volume 4:

Use cases are described in terms of **actors** and their **interactions**.

1



Volume 1:



Volume 2:

Volume 3:

Volume 4:

If **existing IHE actors** are applicable, these are named.

1



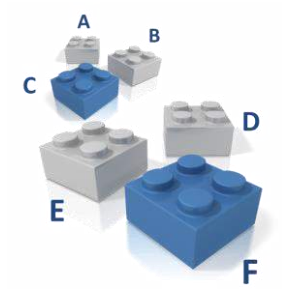
Volume 1:



Volume 2:

Volume 3:

Volume 4:



In Volume 2, the actors' **transactions** are **normatively** defined.

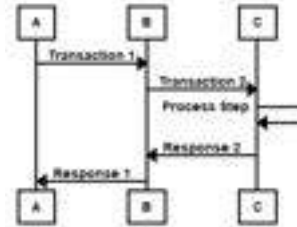
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Volume 1:



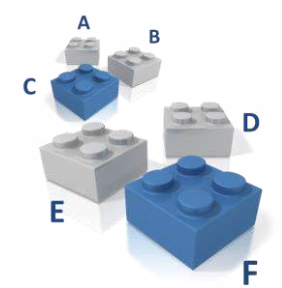
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Volume 3:



Volume 4:



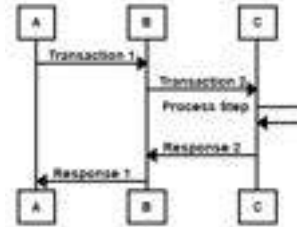
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Volume 1:



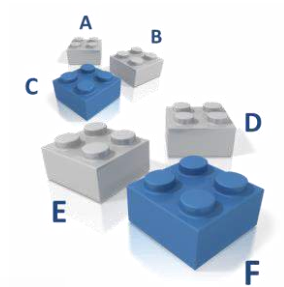
Volume 2:



Volume 3:



Volume 4:



In Volume 3, **content data models** are normatively defined.

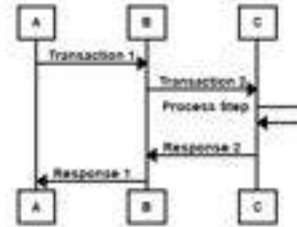
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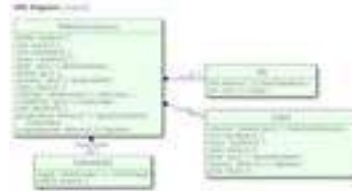
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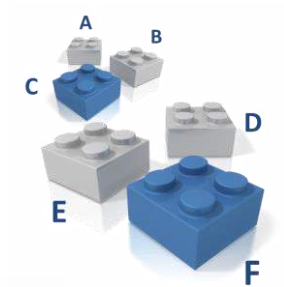
Volume 2:



Volume 3:



Volume 4:



These content models are also **testable**... the **optionality** is removed.

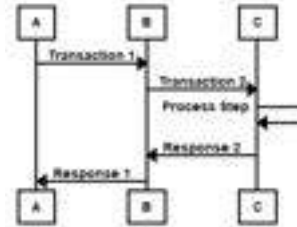
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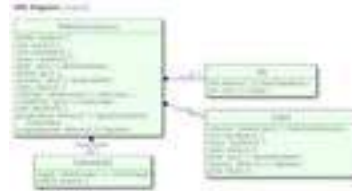
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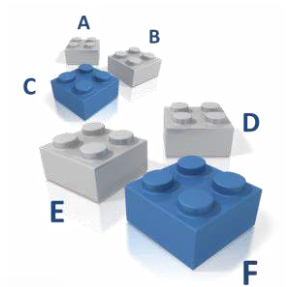
Volume 2:



Volume 3:



Volume 4:

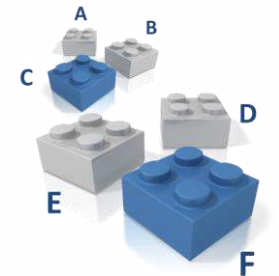


It is possible to have a **content-only** Profile.

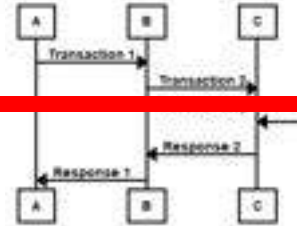
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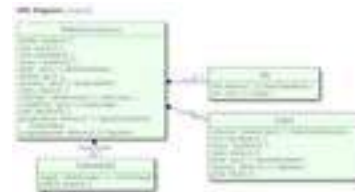
Volume 1:



Volume 2:



Volume 3:



Volume 4:

IHE Profiles are **global** artefacts. They are **specialized** in Volume 4.

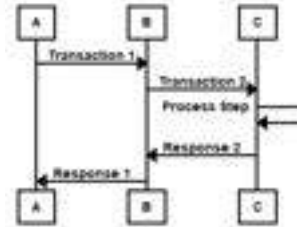
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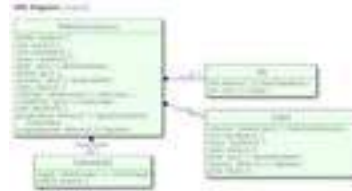
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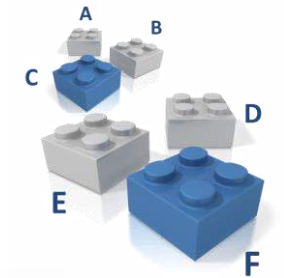
Volume 2:



Volume 3:



Volume 4:



Regional constraints can be defined, here.

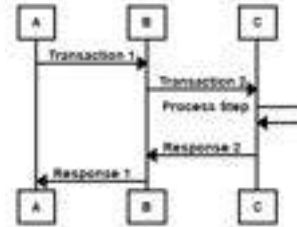
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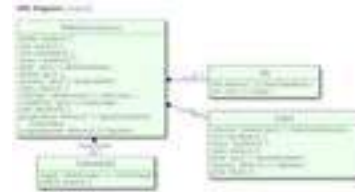
Volume 1:



Volume 2:



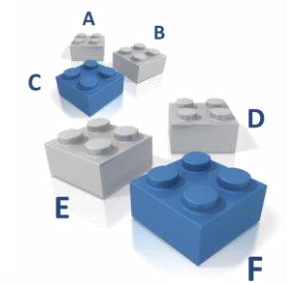
Volume 3:



Volume 4:



HL7 FHIR **HL7 CDA**



And so can **national** ones.

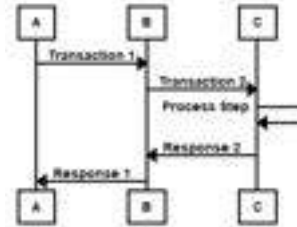
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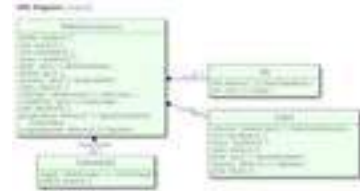
Volume 1:



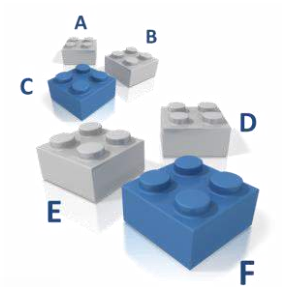
Volume 2:



Volume 3:



Volume 4:



Each relevant IHE **Deployment** Committee ***governs*** their Volume 4 content.

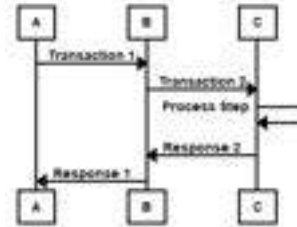
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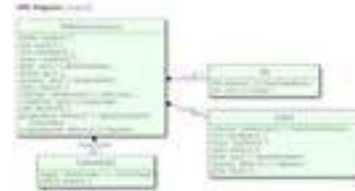
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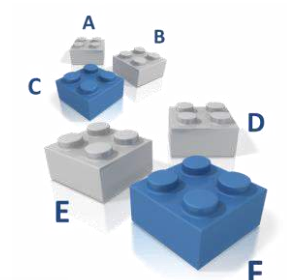
Volume 2:



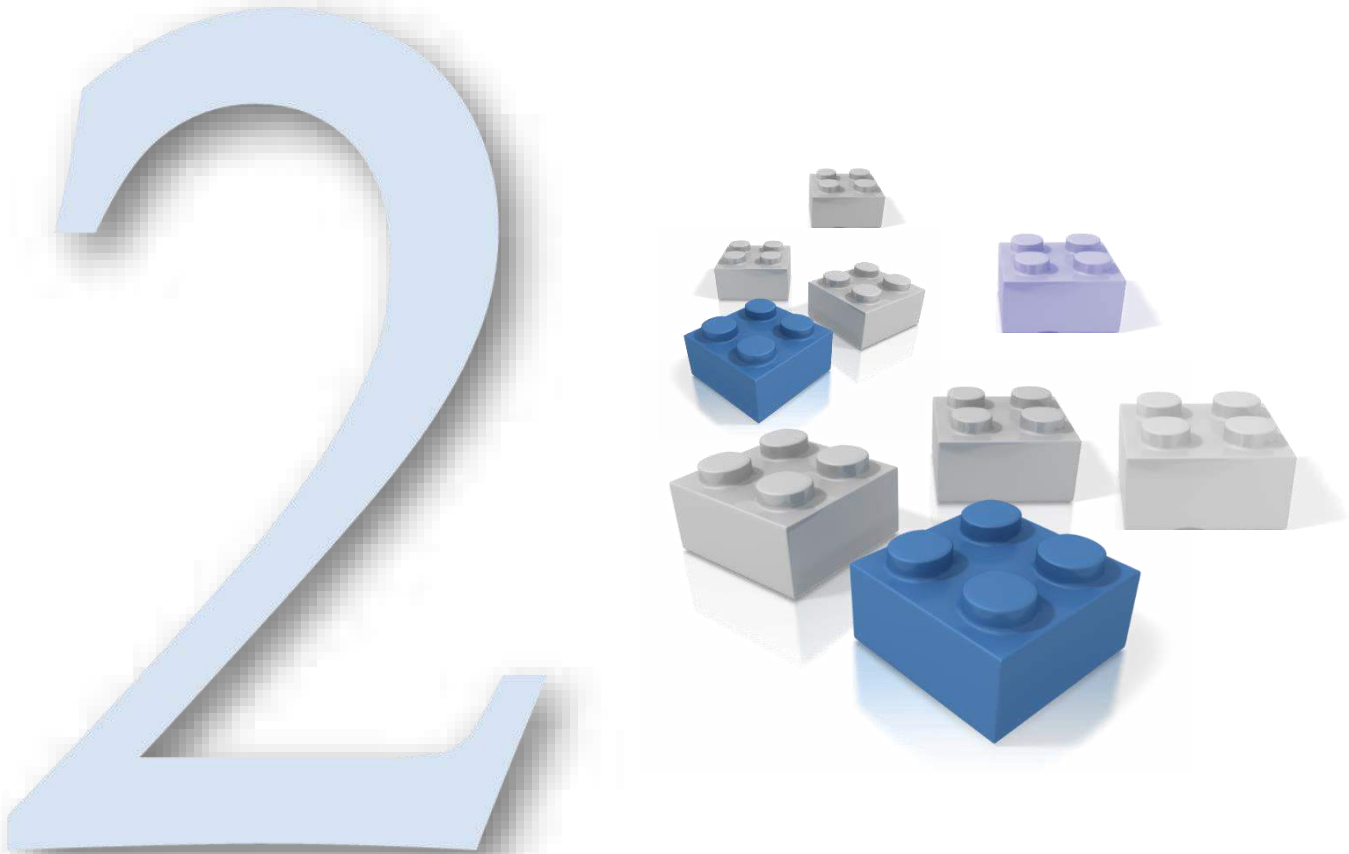
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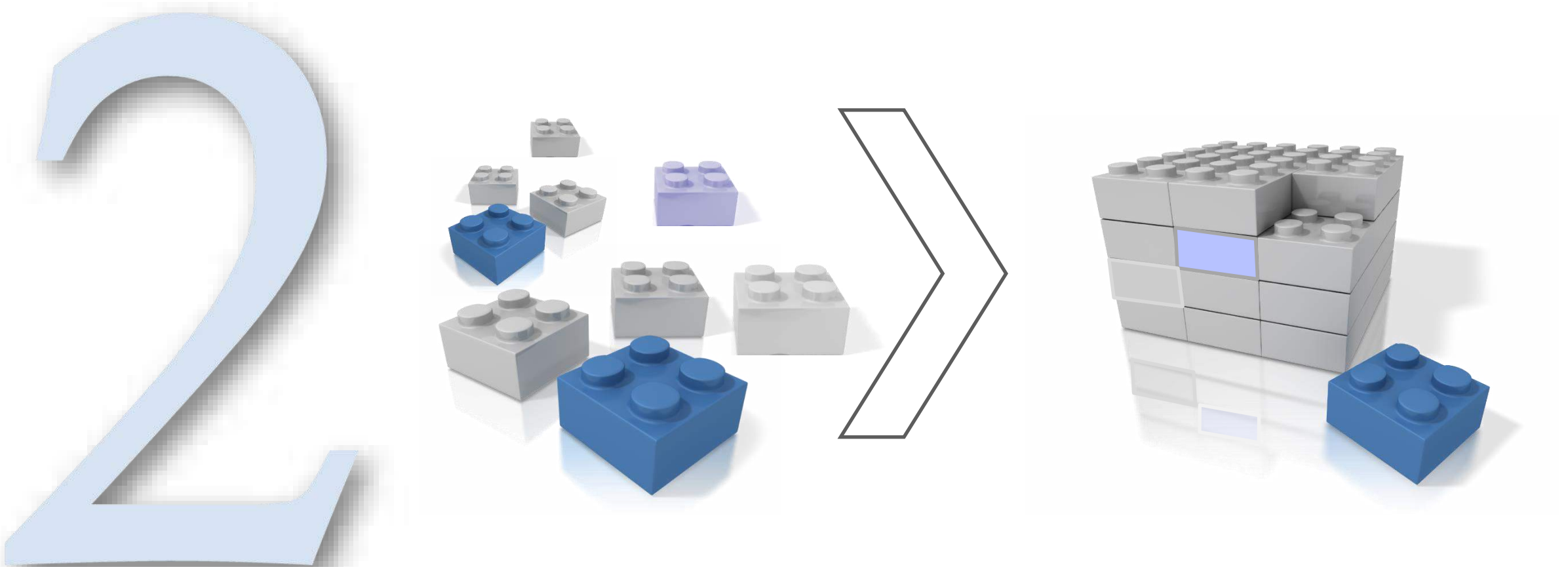
Volume 4:



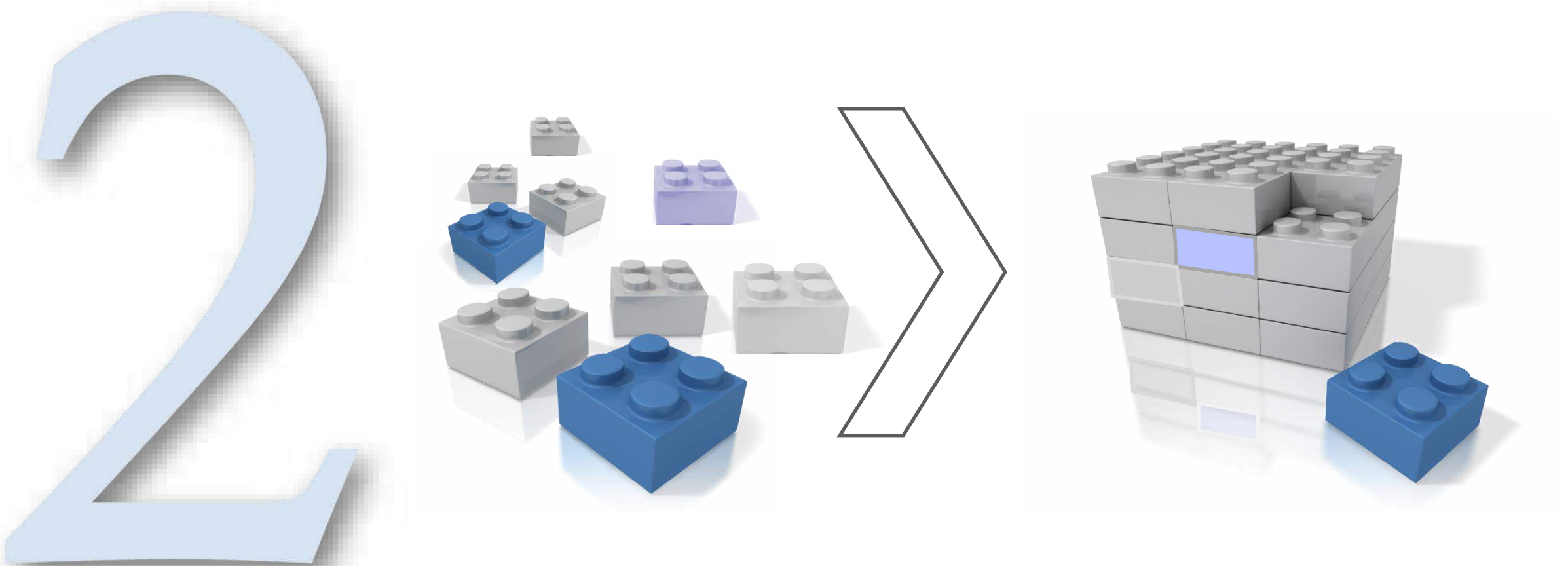
Pillar 2 is **reference models**. These are built from **IHE Profiles**.



The **models** can be thought of as **assemblies** of Lego® blocks.



Their **boringly** engineered dimple patterns means blocks **fit** together.

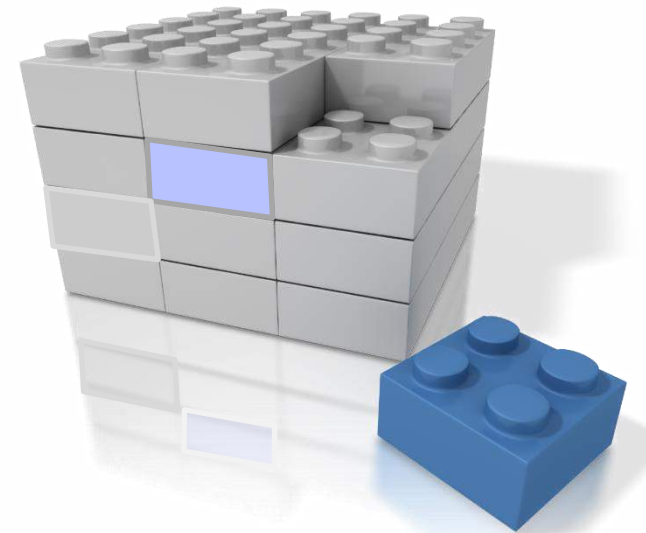
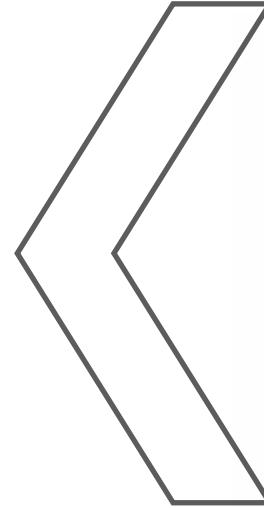


The reference models are described in **IHE Gazelle**.

2

IHE

GAZELLE
eHealth test framework
for interoperability

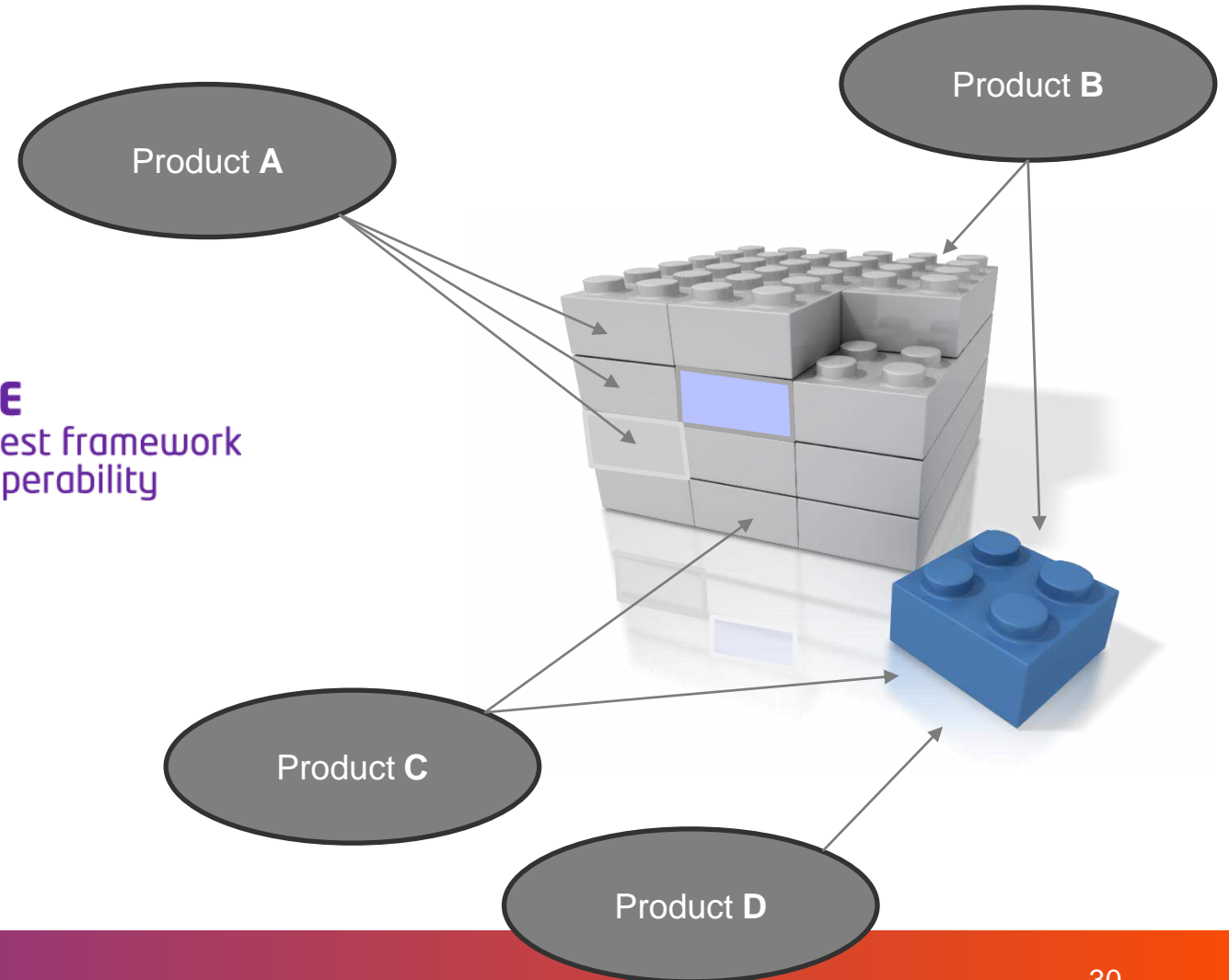


Software solutions **operationalize** one or more building blocks.

2

IHE

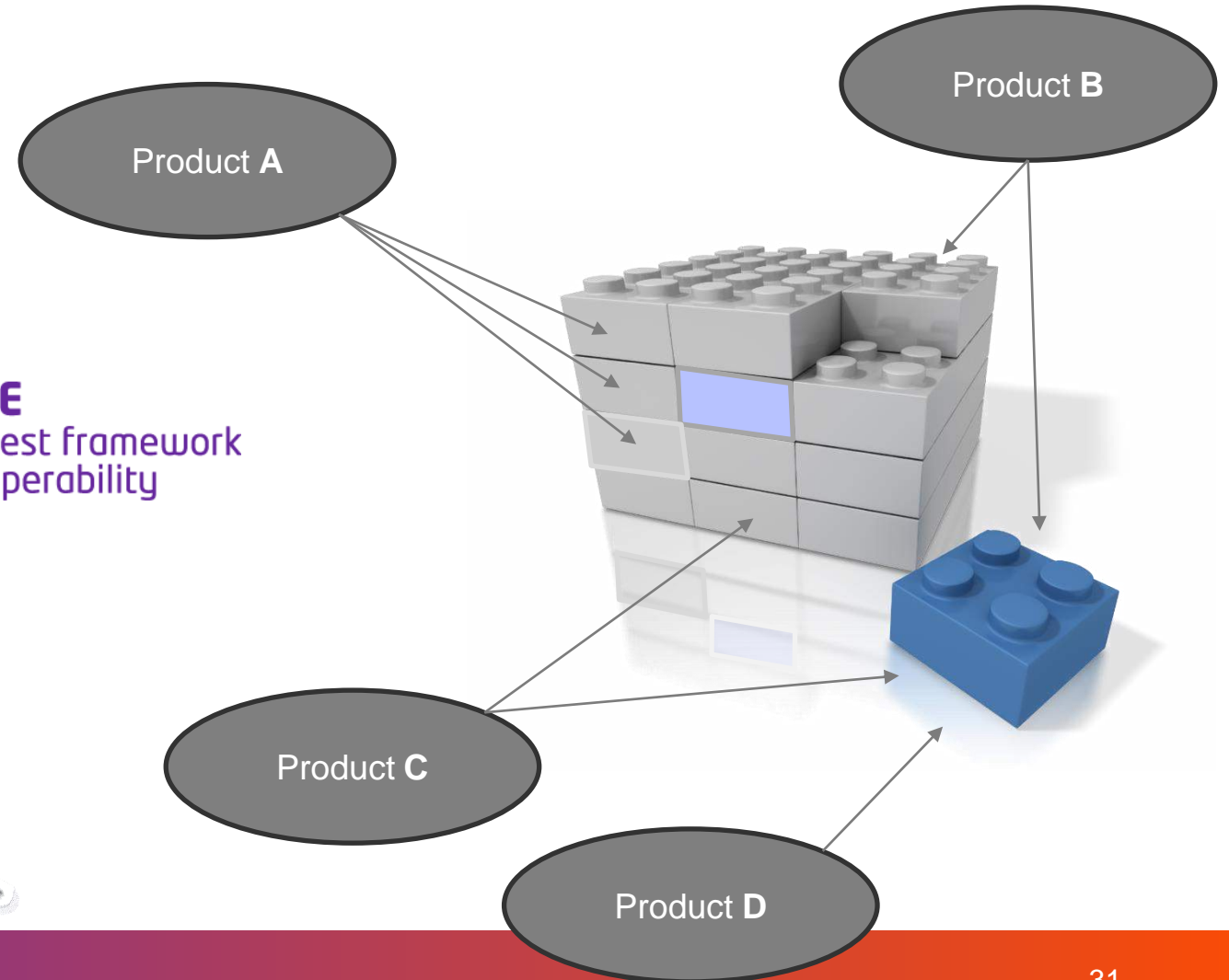
GAZELLE
eHealth test framework
for interoperability



2

Gazelle as an
instrument of
innovation.

IHE | **GAZELLE**
eHealth test framework
for interoperability

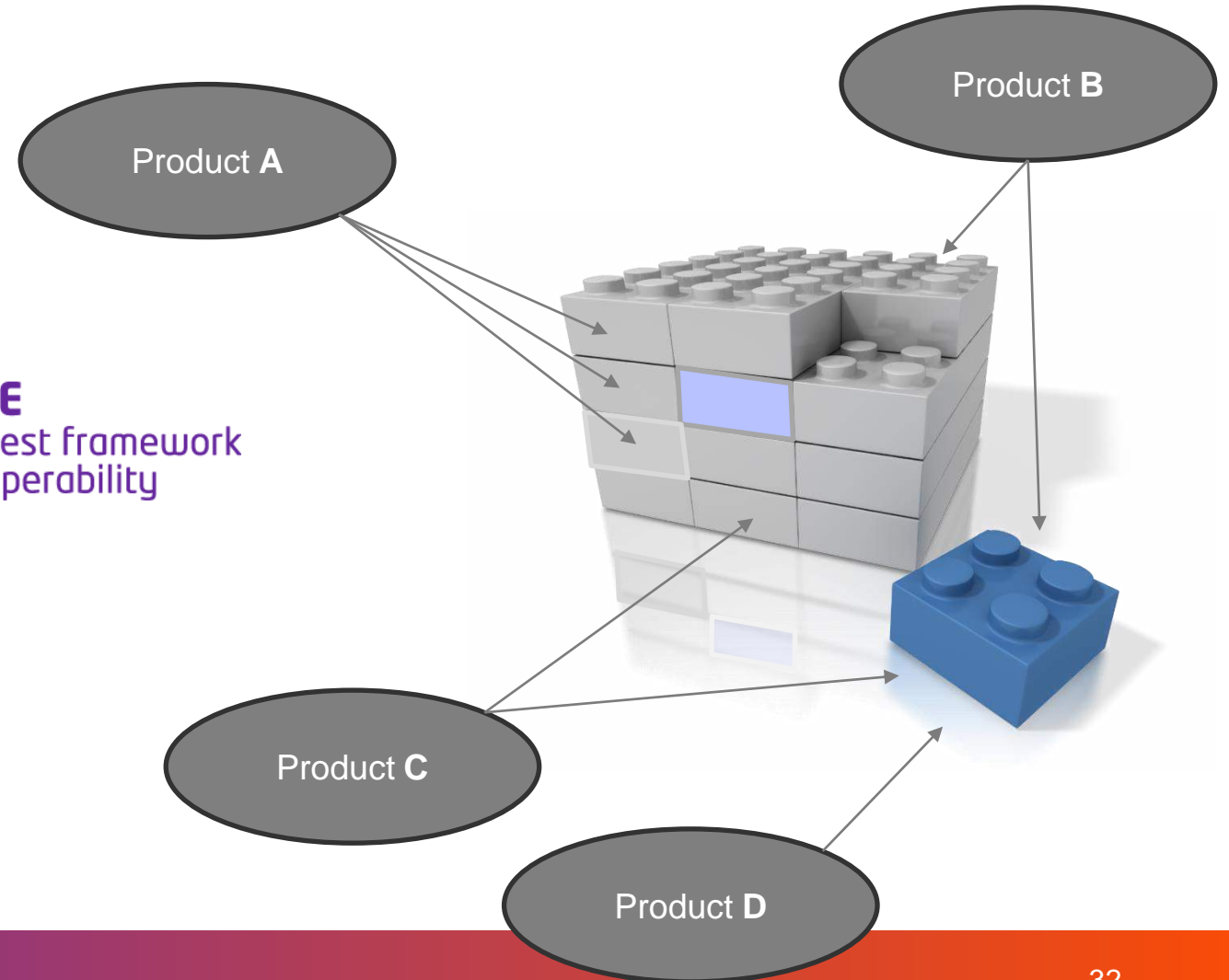


Pillar 3 takes these events a further step – to **conformance** testing.

3

Gazelle as an
instrument of
governance.

IHE | **GAZELLE**
eHealth test framework
for interoperability

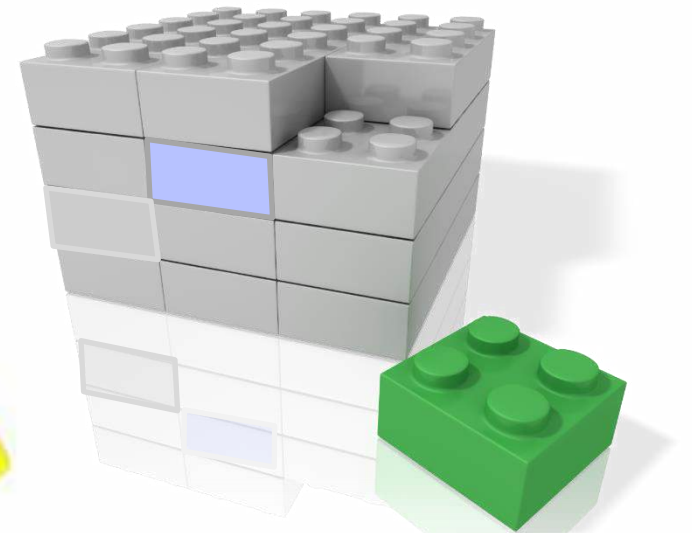


Products that pass the tests “**fit**” with the framework.

3

Gazelle as an
instrument of
governance.

IHE | **GAZELLE**
eHealth test framework
for interoperability



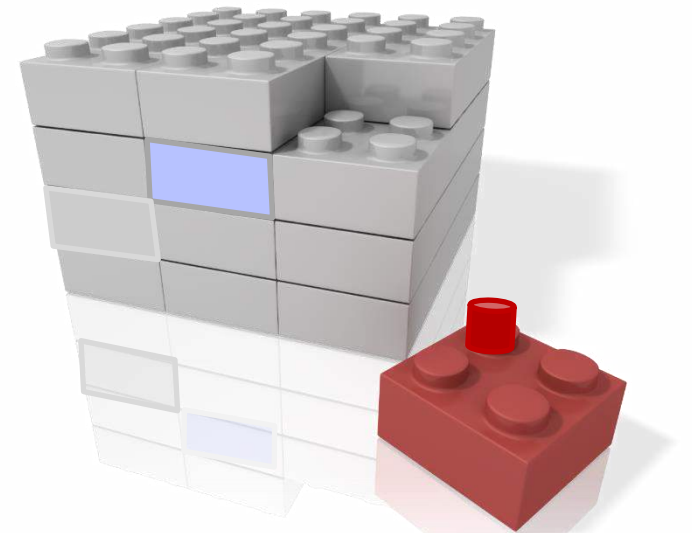
Vendor-1

Products that are **non-conformant** are identified and told what to **fix**.

3

Gazelle as an
instrument of
governance.

IHE | **GAZELLE**
eHealth test framework
for interoperability



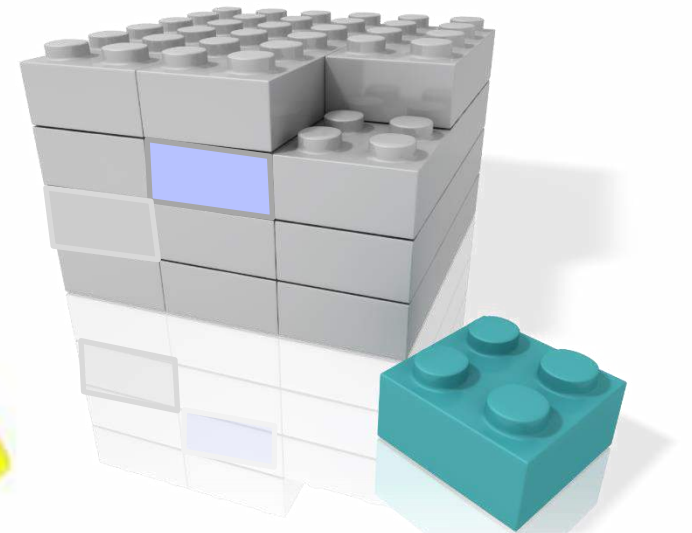
Vendor-2

This process ensures **conformant** solutions **plug-and-play**.

3

Gazelle as an
instrument of
governance.

IHE | **GAZELLE**
eHealth test framework
for interoperability



Vendor-3

Summary points



- IHE's role in the SDO ecosystem is to support going to **scale**. We do that by making “exciting” things **boring**.

- The **IHE Methodology** is leveraged to develop IHE **Profiles**. These are like **Lego® blocks**. They can be assembled into a **reference model** to address a particular use case or set of **use cases**.

- Gazelle can be employed – as an instrument of **innovation** – to **iterate** the reference model design at **engineering** events. It can also be employed – as an instrument of **governance** – to **conformance test** digital health solutions' adoption of and operationalization of the Profiles.



How are we making **UNCOM** more **boring**?



UNICOM is a European initiative to adopt the **IDMP** standards.



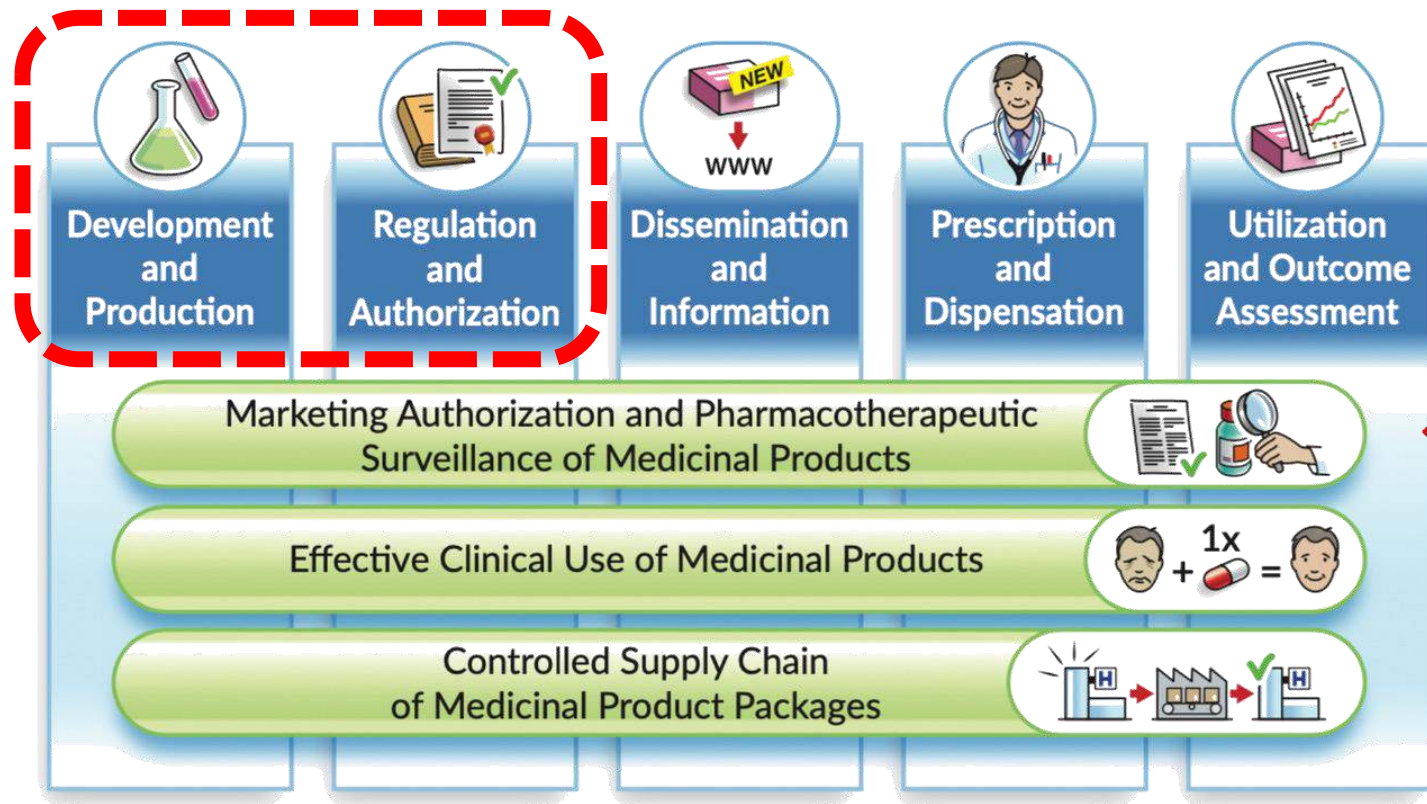
It is a big, **complicated** project.
There are a **lot** of stakeholders.
They are doing a **lot** of things.
It **isn't** boring.

Our role in UNICOM is focused on the **TEST LAB**.



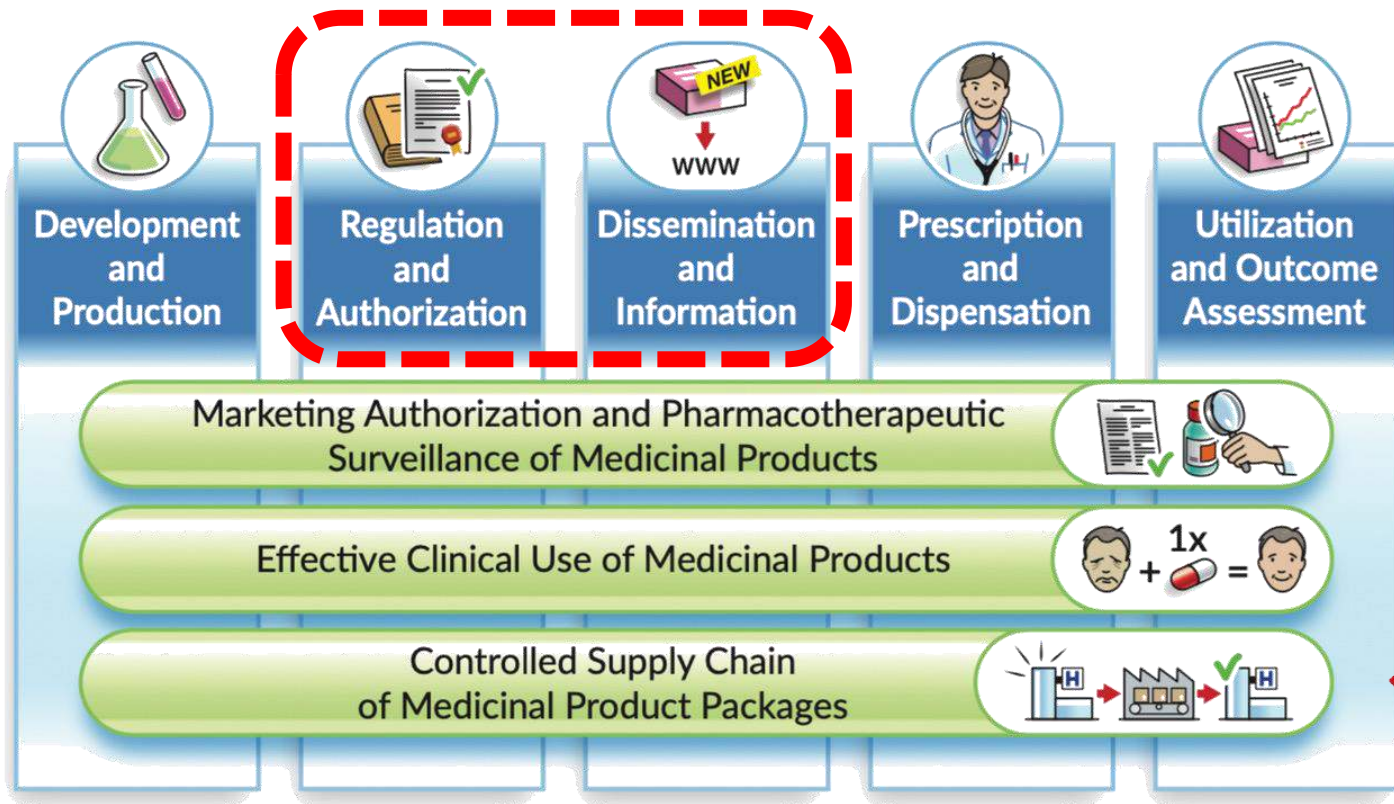
All of the workflows need to be tested. But there many practical things to figure out **before** we can begin testing.

Multiple, different **data exchange pipelines** are in play.



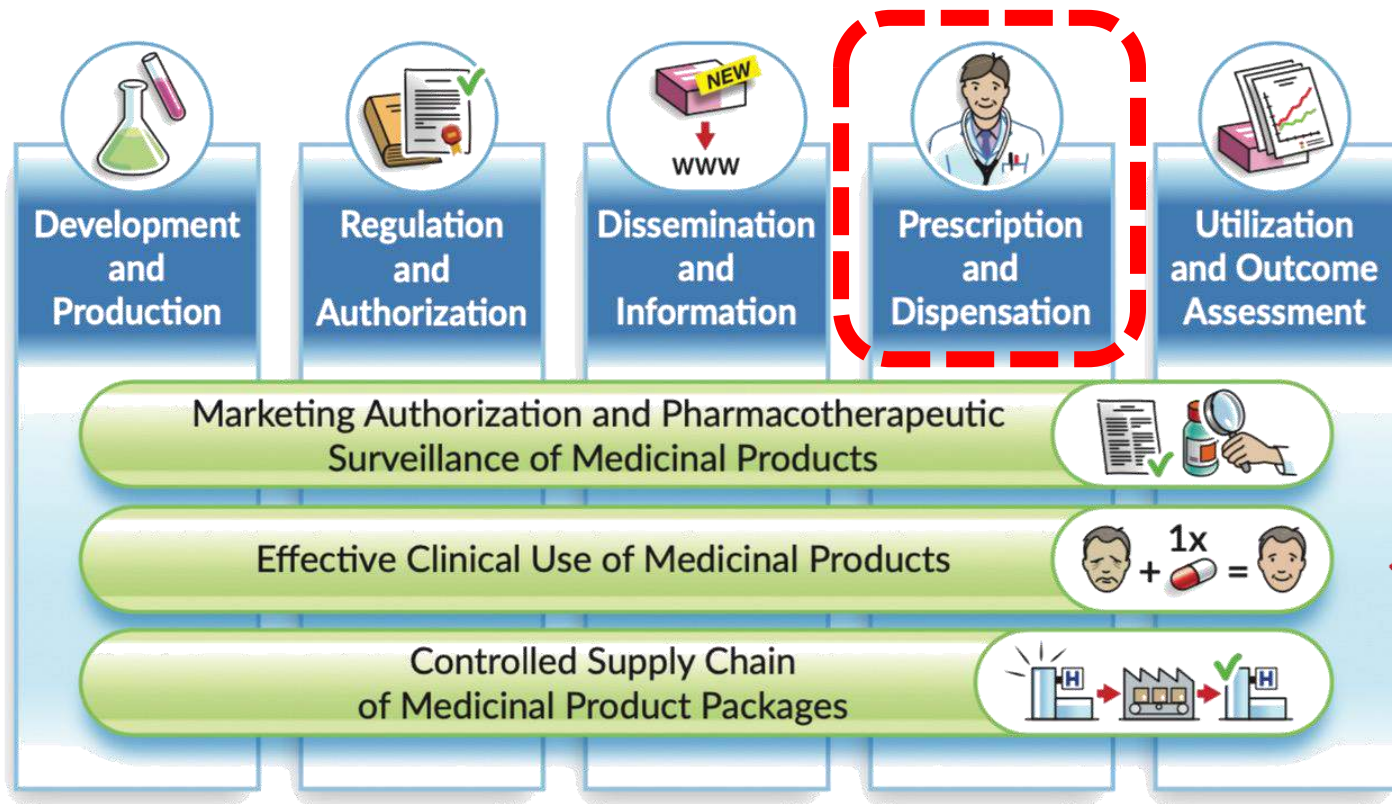
Pharmaceutical companies need to make regulatory submissions to **Regulators**.

Multiple, different **data exchange pipelines** are in play.



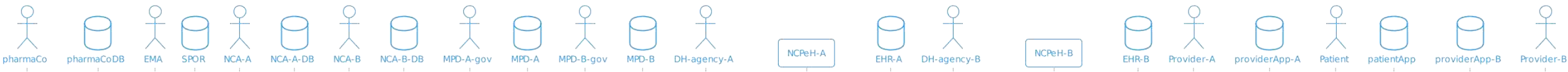
Regulators need to publish content to national Medical Products Dictionaries (**MPDs**) and onward to **digital health solution** users.

Multiple, different **data exchange pipelines** are in play.



Prescribers & Dispensers need to leverage IDMP-adherent data sets to support **safe** medicinal workflows... including **across borders**.

We tried to string together the **multiple** pipelines...

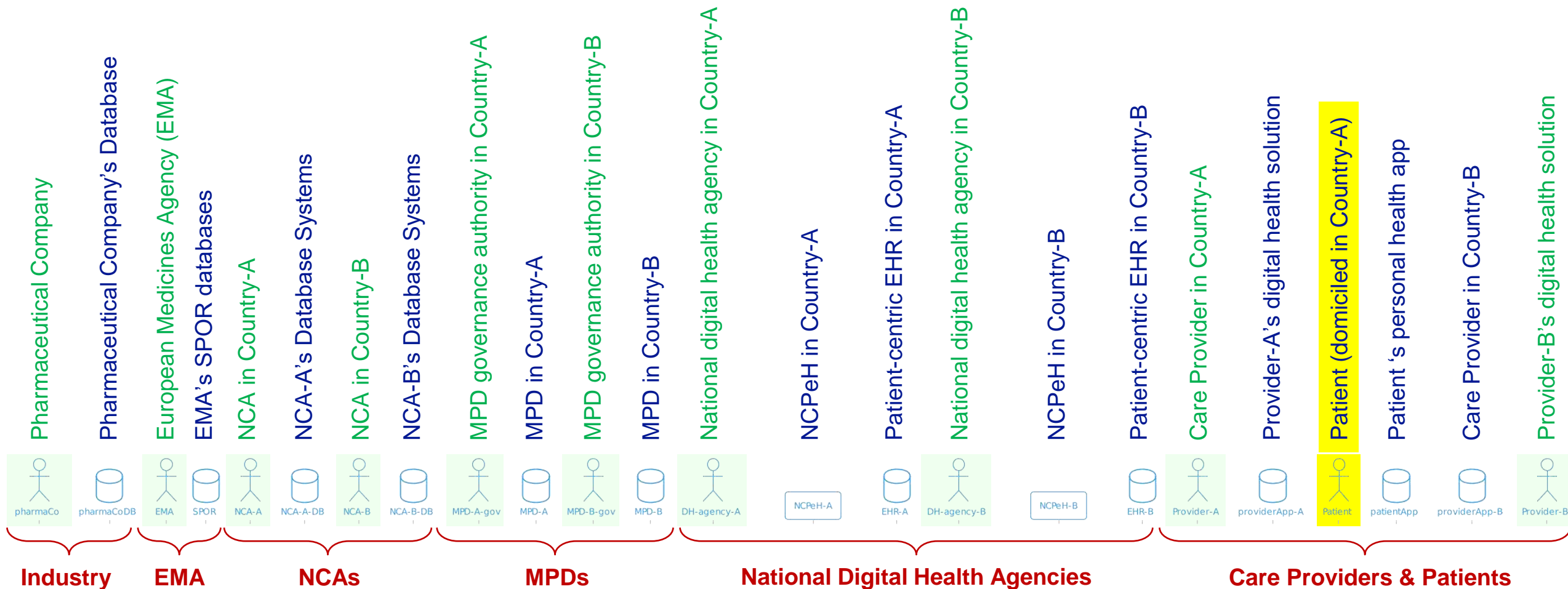


...it's down here at the bottom.

We included actors across **all** the UNICOM stakeholders.



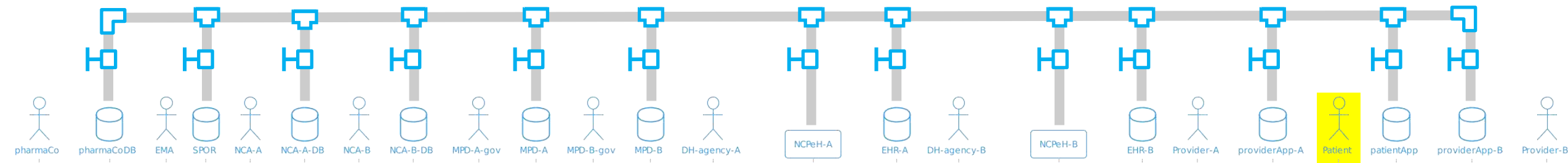
We included both **systems** and **humans**.



We refer to our metaphor as the “**UNICOM data pipeline**”.



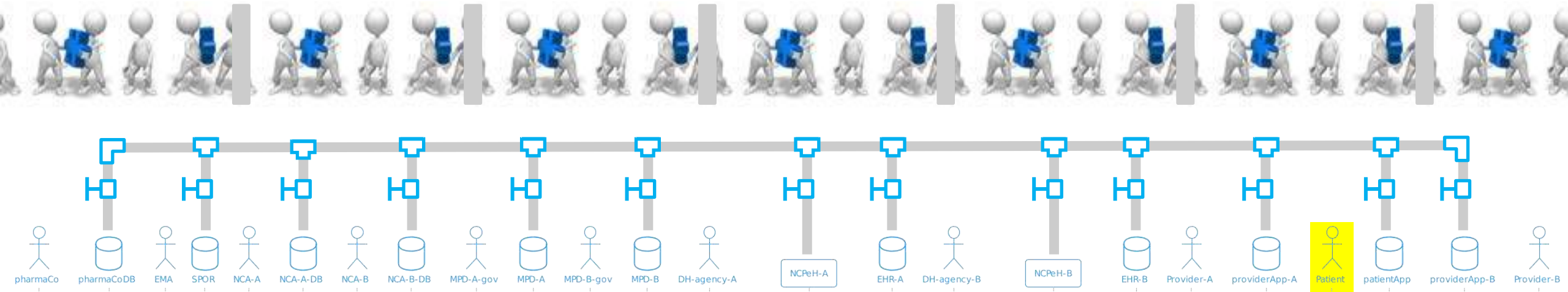
Our distinct UNICOM stakeholders and their systems are **interconnected**. Each has an “*upstream*” data provider and a “*downstream*” data consumer. Together, they form a **data pipeline** that supports UNICOM’s use case workflows.



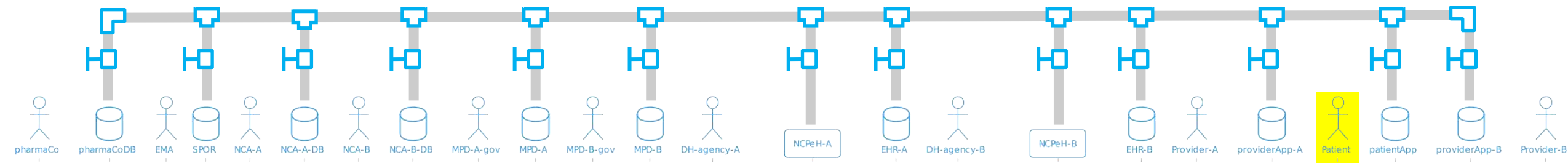
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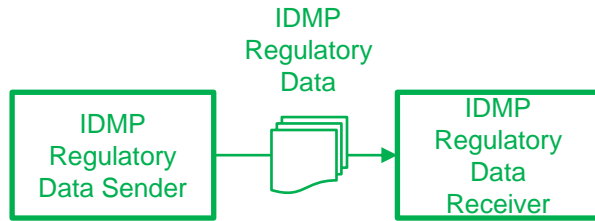
Our distinct UNICOM stakeholders and their systems are **interconnected**. Each has an “*upstream*” data provider and a “*downstream*” data consumer. Together, they form a **data pipeline** that supports UNICOM’s use case workflows.



This metaphor gives us a way to see how our stakeholders' workflows **connect together to “make UNICOM go”**.

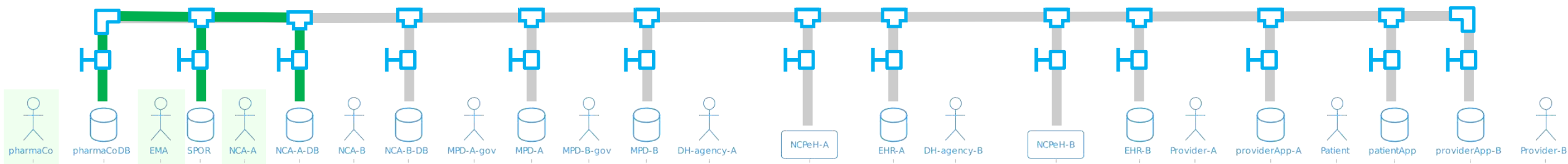


Receiving Medicinal Product Data



INPUT-to-Regulator:

- Pharma Company submissions to EMA, or to an NCA
- Content feeds from EMA to NCAs

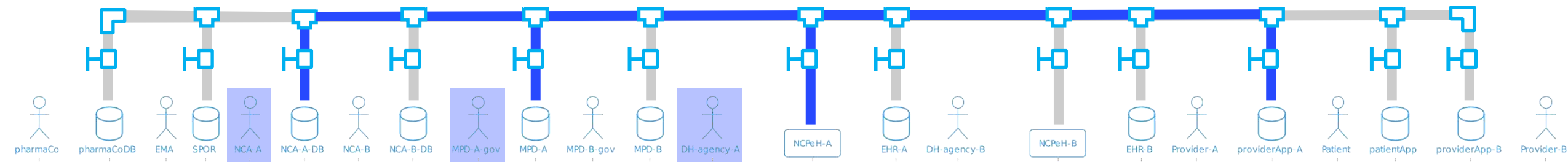


Sharing Medicinal Product Data

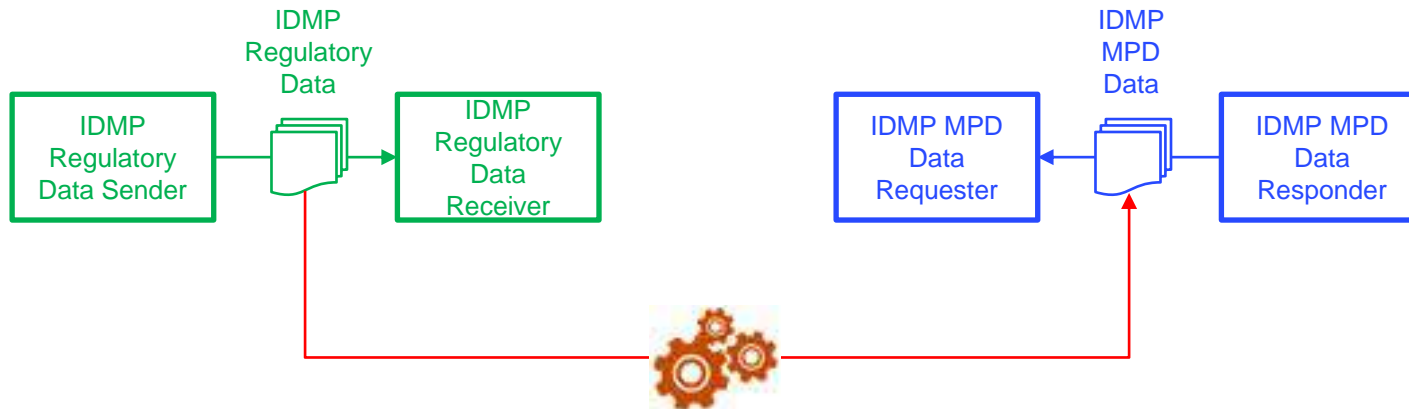


OUTPUT-from-Regulator:

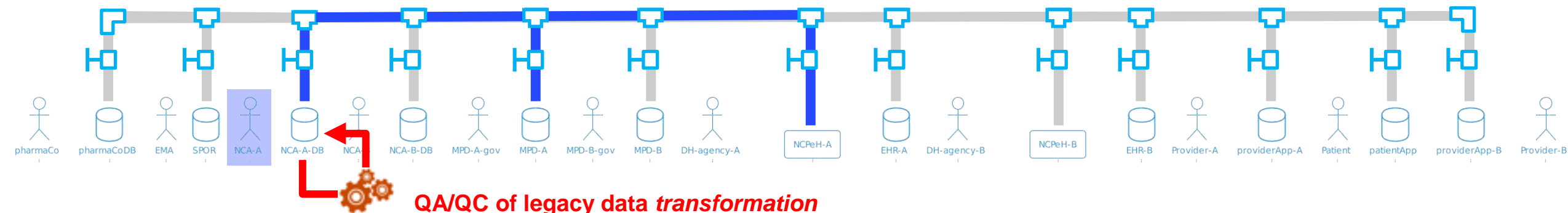
- Content feed from NCAs to MPD operators
- Content feed from NCAs to NCPeH operators
- Content feed from MPDs to eHealth solutions



Managing Medicinal Product Data

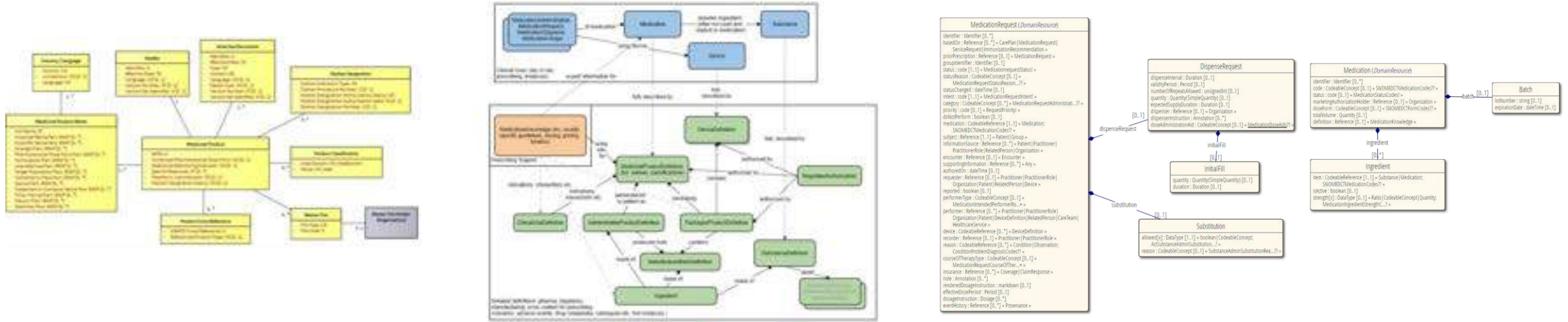


Mapping from a *regulatory* data model to a *care delivery* data model.



QA/QC of legacy data *transformation*

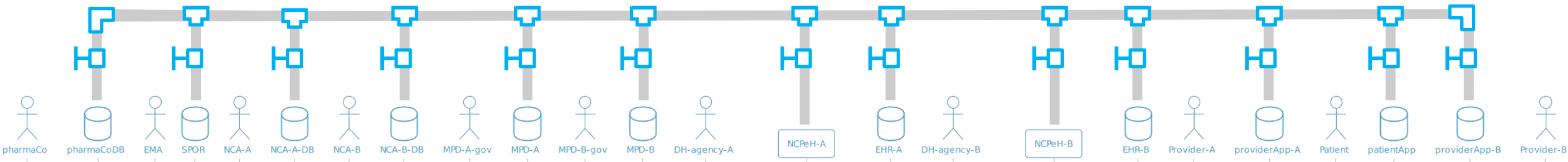
We see the importance of mapping from regulatory to clinical models.



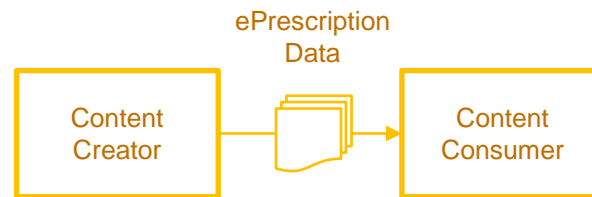
Regulatory Data Models

Model Maps...

Care Delivery Data Models

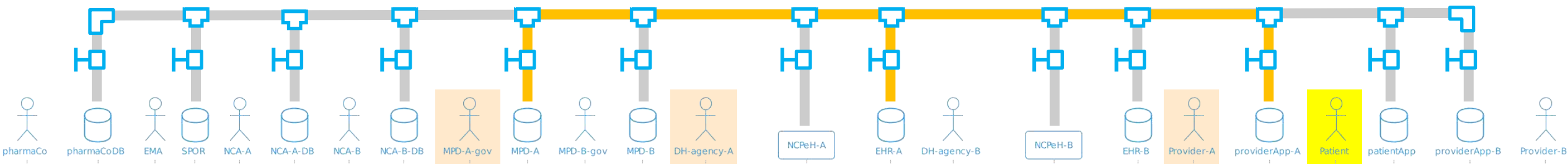


Prescribing a Medicinal Product

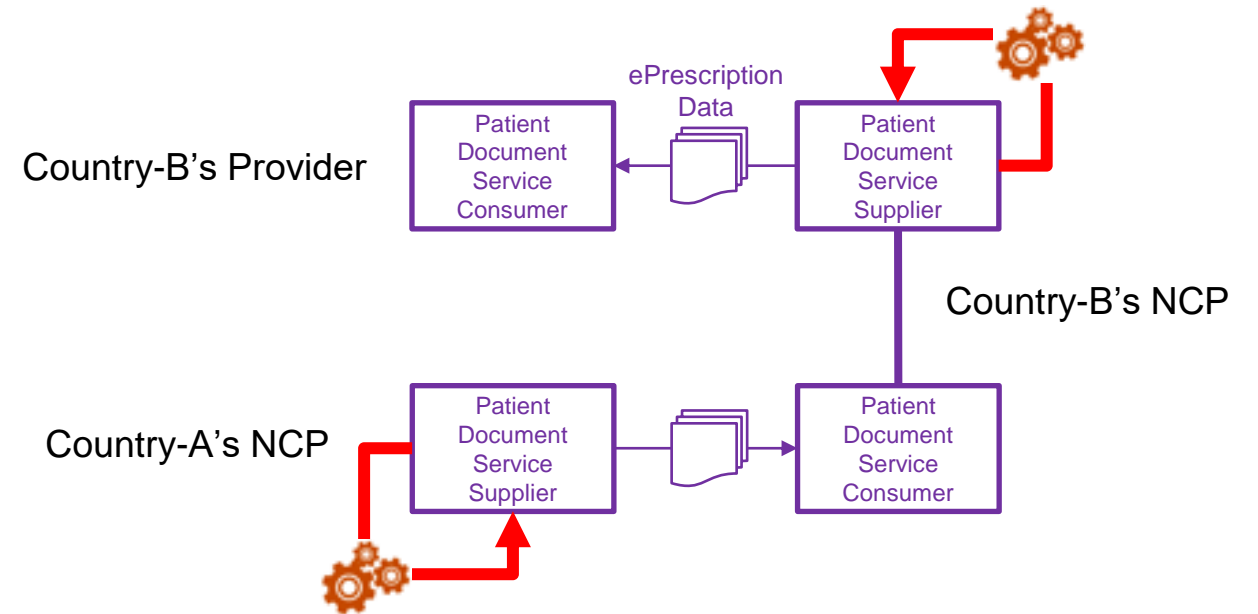


Create an ePrescription:

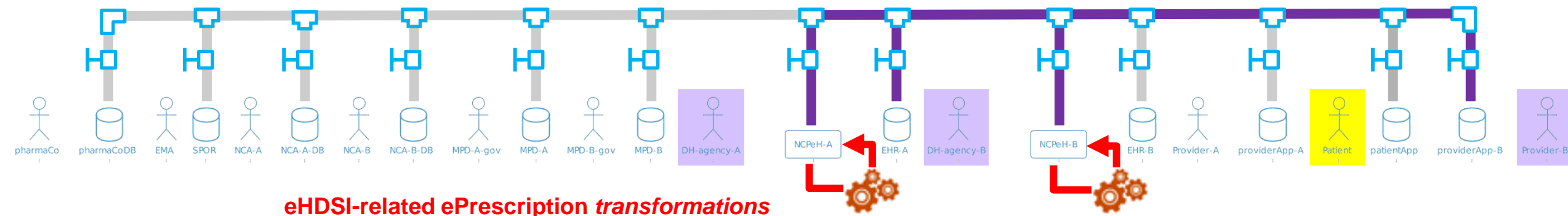
- Provider submits an *MPD-adherent* ePrescription to the “local” (Country-A) EHR



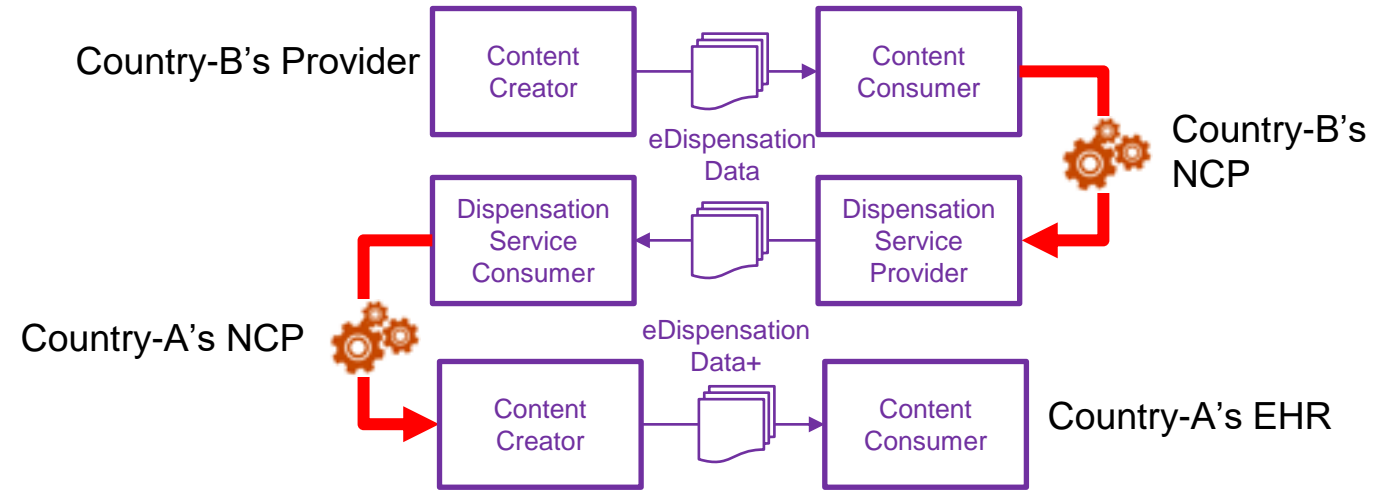
Retrieving a cross-border ePrescription



Cross-border Retrieve of ePrescription

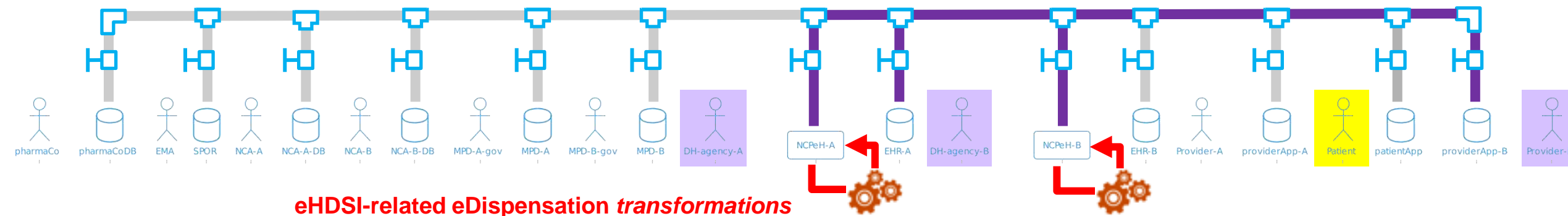


Sharing a cross-border eDispensation



Create an eDispensation:

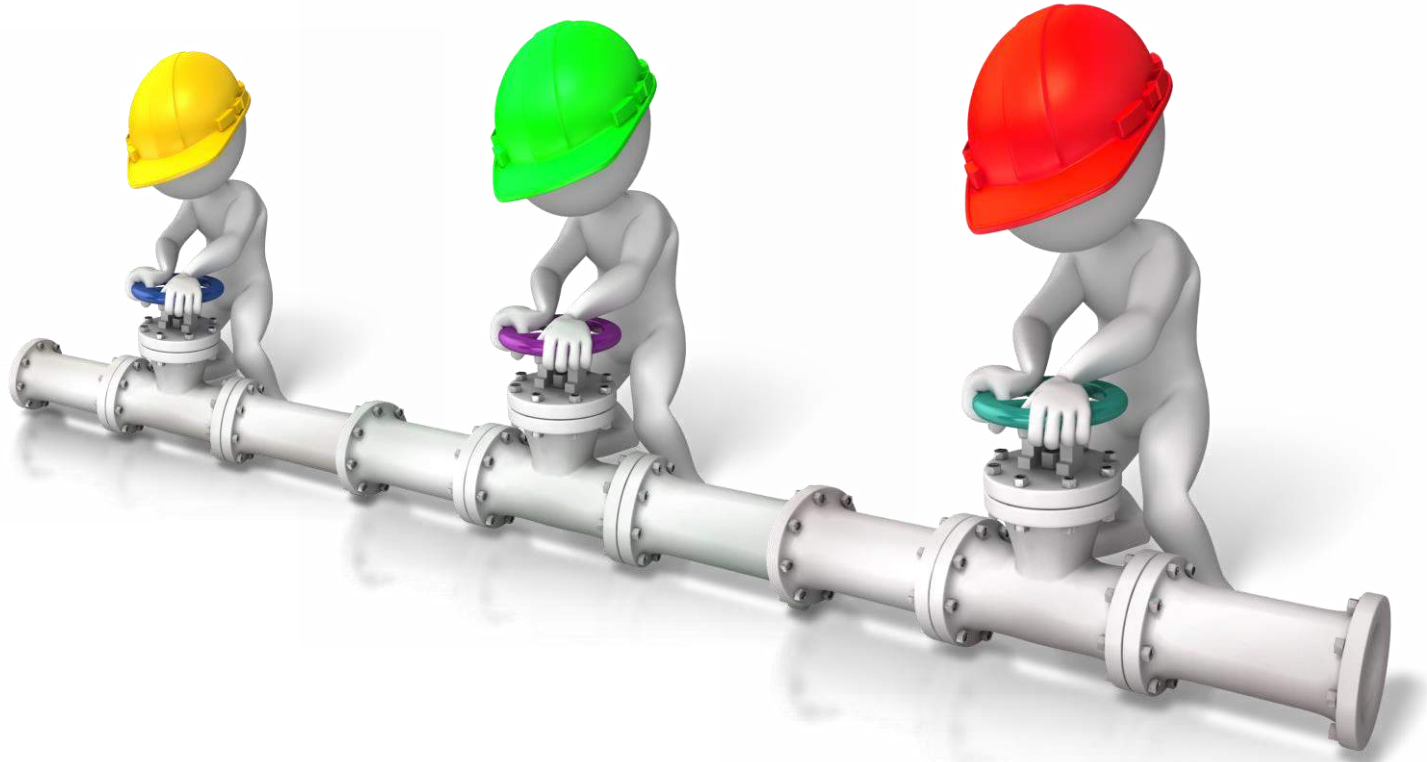
- Provider submits an *adherent* eDispensation to NCPeH-B (⇒ NCPeH-A ⇒ EHR-A)



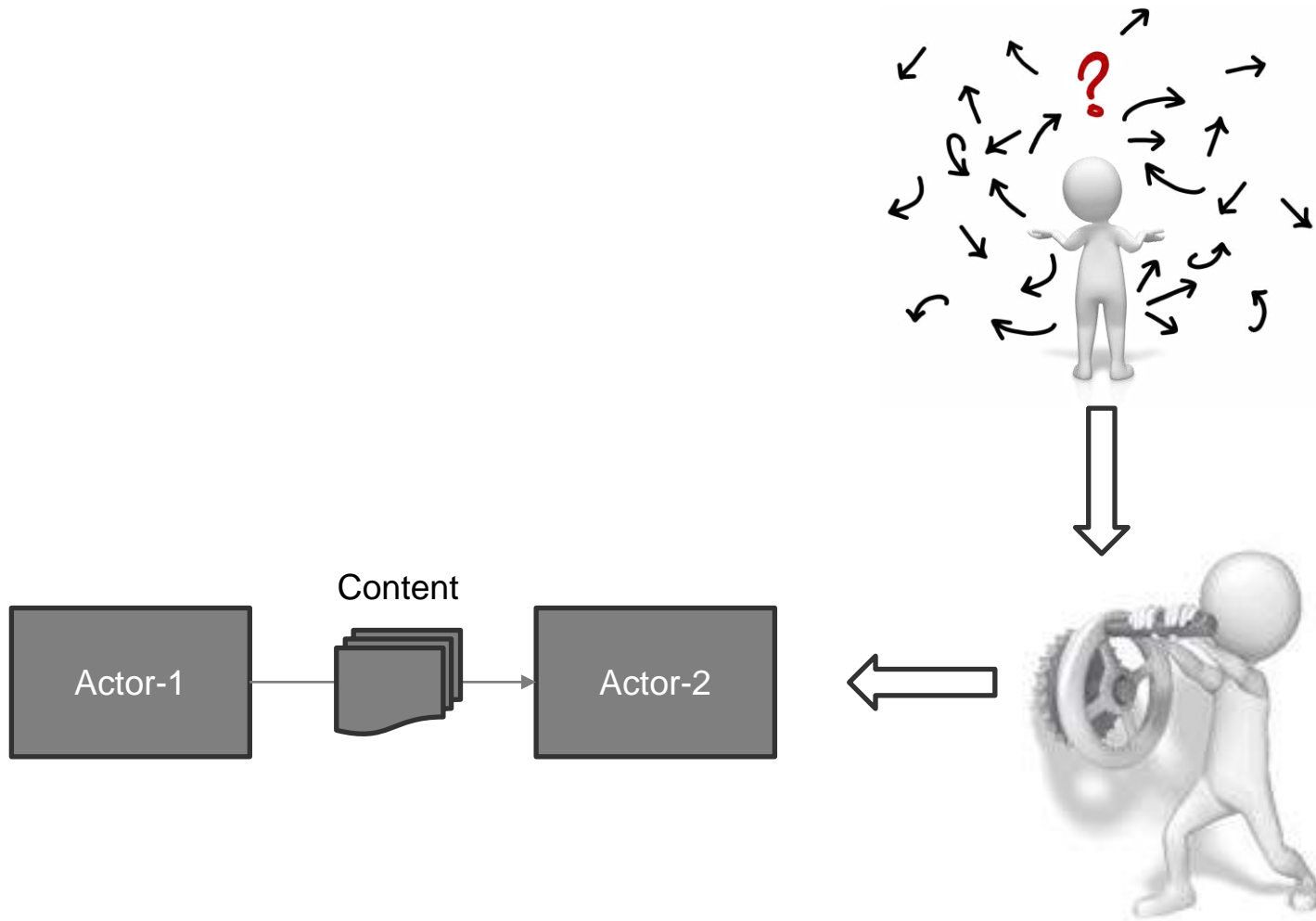
eHDSI-related eDispensation transformations

Our IHE-supported UNICOM TEST LAB provides important value.

Innovation
Implementability
Governance



At each step, we leverage the **IHE Methodology** to make things **less fun**.



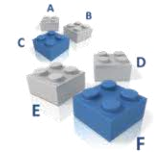
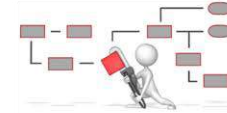
Our work has involved a lot of **convening** and **coordinating**...



1



Volume 1:



Volume 2:

Volume 3:

Volume 4:

Section	Notes	✓
Title	Name of the UNICOM use case	
Title description	1-sentence description of the UNICOM use case	
Title version # and date	Update these for each iteration of the document	
Profile Introduction	Fill in the use case name (highlighted in yellow)	
Vol-1 : Introduction	One or two sentences to describe the UNICOM use case workflows; similar to title description.	
Vol-1 : Overview : Concepts	Leverage content developed in the Antelope form to populate a description of the use case context and its business importance.	
Vol-1 : Overview : Participants	List and describe the relevant participants in the use case. NOTE: these should correspond to the participants in any use case sequence diagrams.	
Vol-1 : Overview : Content	List and describe artefacts / documents exchanged by the workflow participants.	
Vol-1 : Overview: References	List complementary or supporting UNICOM documents, deliverables, and/or artefacts	
Vol-1 : Use Case : UC-#	Number and name each use case	
Vol-1 : Use Case : UC-# : Introduction	Briefly introduce the use case	
Vol-1 : Use Case : UC-# : Sequence diagram	Use a diagramming tool to illustrate the use case as a sequence diagram; the participants should coincide with those already described.	
Vol-1 : Use Case : UC-# : Narrative description	Describe the use case diagram; include important notes related to pre- and post-conditions.	
Test Plan : Introduction	Use the gherkin syntax to describe a set of normative, testable scenarios based on the defined use case(s).	

We leveraged an IHE-based document format to help TEST LAB partners develop well-formed **use case** descriptions. We used a **checklist** to assist them in following helpful formalisms. These boring practices allow stakeholders to readily see how their use cases fit together as part of the overall **UNICOM data pipeline**.

...and a lot of practical **prototyping** and **experimenting**...

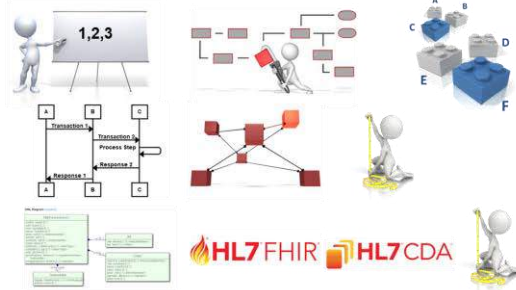
1

Volume 1:

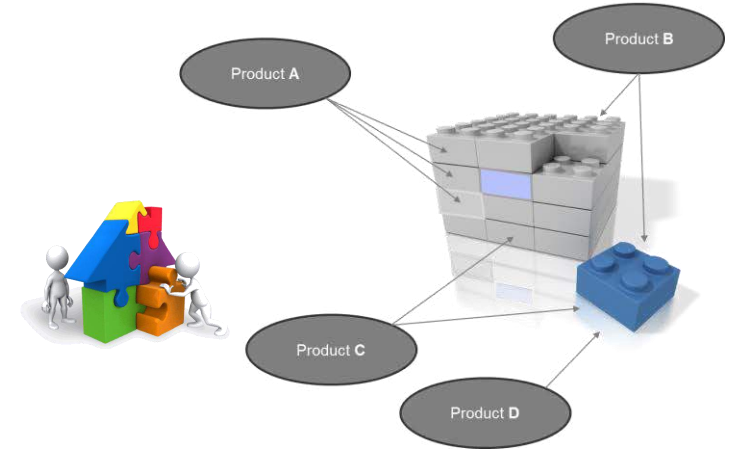
Volume 2:

Volume 3:

Volume 4:



2



IHE teammates developed example **specifications**, and even prototypical **servers**, that could support teams **exploring** interoperability use cases in a “lab” environment. The lessons learned have been **invaluable**.

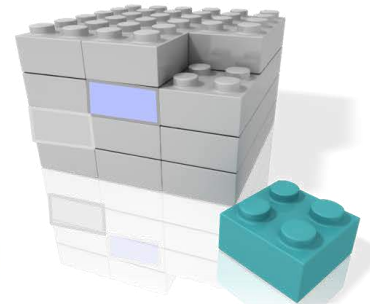
...with testing, too, where the specs are already mature...

Some of the UNICOM use cases leverage **normative** EU specifications based on **mature** IHE profiles. Where an eHealth Digital Service Infrastructure (**eHDSI**) Lego® block needs to be tested... we have the tools, in hand, to do it.

3

Gazelle as an
instrument of
governance.

IHE | **GAZELLE**
eHealth test framework
for interoperability



Vendor-3



... and with the goal of making **UNCOM** more boring, every day.



IHE
INTERNATIONAL

We could take the
fun out of a
bouncy castle.

Thank you!!



Join us for the December webinar : 8 Dec 1PM CET



IHE
Projectathons
The French & Swiss example

8 December
1 PM CET

With Stéphane Spahni
and Thierry Dart



Register here:

